

I Claim:

1. An optical signal transmitter device, comprising:

a base plate;

at least two light elements located on said base plate in a configuration for solely defining a specific predetermined emission characteristic or a light density distribution; and

a condenser configured on an optical axis at a fixed distance away from said light elements for projecting light emitted from said light elements to infinity.

2. The optical signal transmitter device according to claim 1, wherein:

said condenser has a focal plane; and

said light elements are located slightly away from said focal plane of said condenser.

3. The optical signal transmitter device according to claim 1, wherein:

said condenser has a focal plane;

said light elements are located on said focal plane of said condenser;

said condenser has a configuration of optical structures for deliberate defocusing.

4. The optical signal transmitter device according to claim 1, wherein said condenser has a surface facing said light elements and said optical structures are configured on said surface.

5. The optical signal transmitter device according to claim 3, wherein:

said optical structures are spherical lenses that each have a convex surface;

each of said optical structures are fitted on said surface of said condenser such that said convex surface faces said light elements; and

said optical structures each have a focal length that is short in comparison with a distance between said base plate and said condenser.

6. The optical signal transmitter device according to claim 5, wherein said focal length is  $1/6$  of the distance between said base plate and said condenser.

7. The optical signal transmitter device according to claim 1, wherein said condenser is a Fresnel lens.

8. The optical signal transmitter device according to claim 1, wherein said light elements are LEDs.

9. The optical signal transmitter device according to claim 1, wherein said light elements are SMT-compatible LEDs.

10. The optical signal transmitter device according to claim 1, wherein said light elements are LED semiconductor bodies fitted directly to said base plate.

11. The optical signal transmitter device according to claim 1, wherein said base plate is a panel.

12. The optical signal transmitter device according to claim 1, wherein said base plate is a panel with a metal core.

13. The optical signal transmitter device according to claim 1, further comprising a heat sink mounted to said base plate.

14. The optical signal transmitter device according to claim 1, wherein said base plate has regions located away from said light elements that are colored black.

15. The optical signal transmitter device according to claim 1, wherein said condenser is convex.

16. The optical signal transmitter device according to claim 1, wherein at least some of said light elements are electrically connected in series or in parallel.

17. The optical signal transmitter device according to claim 1, wherein:

said light elements are electrically combined to form at least two parallel circuits; and

at least some of said parallel circuits are connected in series.

18. The optical signal transmitter device according to claim 1, wherein:

said light elements are electrically combined to form at least two series circuits; and

at least some of said series circuits are connected in parallel.

19. An optical signal transmitter device, comprising:

a base plate;

at least two light elements configured on said base plate;

a convex condenser configured on an optical axis at a fixed distance away from said light elements for projecting light emitted from said light elements to infinity; and

a scattering lens having optical characteristics;

at least one feature, selected from a group consisting of said configuration of said light elements and said optical characteristics of said scattering lens, enabling a specific predetermined emission characteristic or a light density distribution.

20. The optical signal transmitter device according to claim 19, wherein:

said condenser has a focal plane; and

said light elements are located slightly away from said focal plane of said condenser.

21. The optical signal transmitter device according to claim 19, wherein:

said condenser has a focal plane;

said light elements are located on said focal plane of said condenser;

said condenser has a configuration of optical structures for deliberate defocusing.

22. The optical signal transmitter device according to claim 19, wherein said condenser has a surface facing said light elements and said optical structures are configured on said surface.

23. The optical signal transmitter device according to claim 3, wherein:

said optical structures are spherical lenses that each have a convex surface;

each of said optical structures are fitted on said surface of said condenser such that said convex surface faces said light elements; and

said optical structures each have a focal length that is short in comparison with a distance between said base plate and said condenser.

24. The optical signal transmitter device according to claim 5, wherein said focal length is  $1/6$  of the distance between said base plate and said condenser.

25. The optical signal transmitter device according to claim 19, wherein said condenser is a Fresnel lens.

26. The optical signal transmitter device according to claim 19, wherein said light elements are LEDs.

27. The optical signal transmitter device according to claim 19, wherein said light elements are SMT-compatible LEDs.

28. The optical signal transmitter device according to claim 19, wherein said light elements are LED semiconductor bodies fitted directly to said base plate.

29. The optical signal transmitter device according to claim 19, wherein said base plate is a panel.

30. The optical signal transmitter device according to claim 19, wherein said base plate is a panel with a metal core.

31. The optical signal transmitter device according to claim 19, further comprising a heat sink mounted to said base plate.

32. The optical signal transmitter device according to claim 19, wherein said base plate has regions located away from said light elements that are colored black.

33. The optical signal transmitter device according to claim 19, wherein at least some of said light elements are electrically connected in series or in parallel.

34. The optical signal transmitter device according to claim 19, wherein:

said light elements are electrically combined to form at least two parallel circuits; and

at least some of said parallel circuits are connected in series.



35. The optical signal transmitter device according to claim 19, wherein:

said light elements are electrically combined to form at least two series circuits; and

at least some of said series circuits are connected in parallel.